DEFENSE LOGISTICS AGENCY (DLA)
SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM
SBIR FY14.2 Proposal Submission Instructions

Solicitation, topic, and general questions regarding the SBIR Program should be addressed according to the DoD Program Solicitation. For technical questions about the topic during the pre-release period, contact the Topic Authors listed for each topic in the Solicitation. To obtain answers to technical questions during the formal Solicitation period, visit http://www.dodsbir.net/sitis. Specific questions pertaining to the DLA SBIR Program should be submitted to:

Natalie Seiling, DLA SBIR Program Manager
E-mail: natalie.seiling@dla.mil or DLASBIR2@dla.mil
Phone: 804-279-5120

Use of e-mail is encouraged. Proposals not conforming to the terms of this Solicitation will not be considered. Only Government personnel will evaluate proposals.

TECHNICAL QUESTIONS

During the pre-release period (April 23 - May 22, 2014), contact the topic authors listed for each topic in the solicitation.

To obtain answers to technical questions during the formal solicitation period (May 23 - June 25, 2014) visit http://www.dodsbir.net/sitis.

For general inquiries or problems with the electronic submission, contact the DoD Help Desk at 1-866-724-7457 (8:00 am to 5:00 pm ET).

DLA's projected funding levels support between one (1) and four (4) Phase I awards and between one (1) or two (2) Phase II awards from this topic. DLA reserves the right to limit awards under any topic.

DLA SBIR PROGRAM PRINCIPLES

DLA is very committed to this research topic area, although projected funding levels are extremely limited. Therefore, in order to ensure eligibility of selection, a project must offer exceptional benefits to one or more military services, a partnership with DLA, or another military service, or an OEM, or provide exceptional benefits or partnership with a private entity.

DLA seeks to solicit innovative, high-risk research and development proposals from the small business community. All selections shall demonstrate and involve a degree of technical risk where the technical feasibility of the proposed work has yet to demonstrate a fully established maturity.

DLA prefers market-driven companies, which can move technology into the commercial high volume market. Phase I proposals should demonstrate the feasibility of the proposed technology and the merit of a Phase II for a prototype or at least a proof-of- concept demonstration. Future market possibilities and demonstrated commercialization potential strongly influence Phase II selections. Funding commitments, public, or private, submitted as part of the Phase II proposal, are the best demonstration of commercialization potential.

SUBMISSION OF DLA SBIR PROPOSALS

The DLA SBIR program, in its decision process for Phase I award selections, uses the DoD 14.2 SBIR Program Solicitation Evaluation Criteria – Phase I from Section 6, however with a differing prioritization and additional emphasis on both innovation and commercialization potential. Consider reviewing the DoD SBIR Desk Reference, page 94, Section XII, paragraph C.3 that describes the aspects of commercialization in Phase II proposals. Appropriate consideration of these factors within your Phase I proposal will increase your competitiveness for selection. DLA reserves the right to limit awards under any topic. The DLA lists evaluation criteria in descending order of importance:

- **Technical Sufficiency**

- **Innovation:** DLA evaluates innovation independently from technical sufficiency. The DLA SBIR program employs the following concepts and definitions of innovation when making project selection decisions. An invention improves some product, process, or service. Further, an invention transforms into innovation through an introduction to the public. Another transition path would involve the invention moving into some sort of commercialization phase, e.g. commercial development, outside investment, or sales. DLA seeks technologies and processes that offer the potential for a breakthrough increases the quality, decreases cost, or lead-time for items related to the relevant topic. The items should fall under DLA procurement for one or more of the military services

- **Commercialization Potential**: In addition to the requirements of Section 6 of the DoD 14.2 SBIR Program Solicitation, DLA recommends offeror's provide a plan to seek private and/or public funding commitments along with possible commercialization partnerships that have the relevant potential to invest in the technology. The offeror would accomplish this plan during the Phase I research and optimally result in potential co-investors at the time of Phase II proposal submission

- **Qualifications:** DLA evaluates qualifications of the proposed principal/key investigators, supporting staff and consultants

The offeror must submit the entire proposal (which includes Cover Sheet, Technical Volume, Cost Proposal, and Company Commercialization Report) electronically via the DoD SBIR/STTR Proposal Submission Site (http://www.dodsbir.net/submission). DLA will not accept any proposals submitted via any other medium. Do not send a hardcopy of the proposal. Hand or electronic signature on the proposal is not a requirement. If you experience problems uploading a proposal, call the DoD Help Desk at 1-866-724-7457 (8:00 am to 5:00 pm EST). Notification of Selection and non-selection letters occurs electronically via e-mail.

Proposals not conforming to the terms of this solicitation will not receive further consideration.

FOREIGN NATIONALS

If the offeror proposes to use a foreign national(s) [any person who is NOT a citizen or national of the United States, a lawful permanent resident, or a protected individual as defined by 8 U.S.C. 1324b(a)(3) – refer to section 3.5 of the DoD SBIR Program Solicitation 14.2 for definitions of "lawful permanent resident" and "protected individual"] as key personnel, the following information should be provided: country of origin, the type of visa or work permit under which they are performing and an explanation of

their anticipated level of involvement on this project. DLA may require additional information during negotiations in order to verify the foreign citizen's eligibility to participate on a contract issued as part of this solicitation.

PHASE I PROPOSAL PAGE LIMIT

DLA Phase I proposals have a 20-page limit (excluding the Cost Proposal and the Company Commercialization Report). Pages in excess of the 20-page limitation will not receive any consideration for proposal (including attachments, appendices, and references).

OPTION MUST BE INCLUDED AS PART OF PHASE I PROPOSAL

Phase I contracts are expected to have a period of performance (POP) of roughly nine to twelve months and a maximum cost of $100,000. The Phase I Option, which **must** be included as part of the Phase I proposal, covers activities over a period of up to six months and should describe appropriate initial Phase II activities that may lead to the successful demonstration of a product or technology. The Phase I Option proposal must be included within the 20-page limit for the Phase I proposal. DLA may or may not exercise the Phase I Option; however, DLA will make the determination to exercise the option prior to the end of the POP stated in the Phase I contract.

The offeror will submit a firm-fixed-price-level-of-effort-term Phase I cost proposal ($150,000 maximum) in detail online. Proposers that participate in this solicitation must complete the Phase I Cost Proposal not to exceed the maximum dollar amount of $100,000 and a Phase I Option Cost Proposal not to exceed the maximum dollar amount of $50,000. Phase I and Phase I Option costs must be shown separately but may be presented side by side on a single Cost Proposal. DLA recommends that the Phase I Cost Proposal include a cost estimate for travel for a final program review. Travel locations for planning purposes are as follows:

Topic:	Location:
DLA142-001	Defense Supply Center Columbus, OH

PHASE I KEY DATES

14.2 Solicitation (Pre-release)	April 23 – May 22, 2014
14.2 Solicitation (Open)	May 23-June 25, 2014
Phase I evaluations	July 2014
Phase I awards	September 2014

PHASE II PROPOSAL SUBMISSION

Offeror may submit Phase II proposals during any open solicitation period any time after the effective date of the Phase I award. DLA may invite Phase I performers to submit a Phase II proposal, not to exceed $1,000,000, based upon the success of the Phase I contract to meet the technical goals of the topic. This Phase II proposal invitation process shall not limit a company from submitting a Phase II proposal. The evaluation of Phase II proposals adhere to the evaluation criteria provided below.

Due to limited funding, DLA reserves the right to limit awards under any topic and only proposals considered to be of superior quality will receive funding consideration. The preferred contract types for DLA Phase II are firm-fixed-price-level-of-effort-term (FFP) or cost plus fixed fee (CPFF).
The DLA SBIR program, in its decision process for Phase II award selections, uses the three DoD 14.2 SBIR Program Solicitation Evaluation Criteria – Phase II from Section 8, however with a differing prioritization and additional emphasis on commercialization potential. DLA lists the evaluation criteria in descending order of importance:

- **Technical Sufficiency**

- **Commercialization Potential:** In addition to the requirements of DoD 14.2 SBIR Program Solicitation Section 8, DLA recommends that companies demonstrate the commercialization potential of their technology by attracting private-sector co-investment and support during the performance of the Phase II. The value that DLA assesses for this factor depends on the type of co-investment or support (cash or support-in-kind), the amount of matching support, and the timing of the matching support.

- **Qualifications:** DLA evaluates qualifications of the proposed principal/key investigators, supporting staff and consultants

The offeror must submit the entire proposal (which includes Cover Sheets, Technical Proposal, Cost Proposal, and Company Commercialization Report) electronically via the DoD SBIR/STTR Proposal Submission Site (http://www.dodsbir.net/submission); DLA will not accept any proposals not submitted via this site. Do not send a hardcopy of the proposal. Hand or electronic signature on the proposal is also not a requirement. If you experience problems uploading a proposal, call the DoD Help Desk 1-866-724-7457 (8:00 am to 5:00 pm EST). Notification of Selection and non-selection letters occurs electronically via e-mail.

Proposals not conforming to the terms of this solicitation will not receive further consideration.

PHASE II PROPOSAL PAGE LIMIT

DLA Phase II proposals have a 40-page limit (excluding the Cost Proposal and the Company Commercialization Report). Pages in excess of the 40-page limitation will not receive consideration during the evaluation of the proposal (including attachments, appendices, or references).

FAST TRACK

DLA does not utilize Fast Track.

PHASE II ENHANCEMENT POLICY

DLA does not utilize a Phase II enhancement process.

PHASE I DELIVERABLES / REPORTS

Phase I proposals should anticipate the following deliverables.

Milestones: Each phase of the project will be milestone driven. The Principal Investigator will propose milestones prior to starting any phase of the project.

Deliverables:

- Major milestone schedule and decision tree for project
- Initial SBIR Project Summary (one-page, unclassified, non-sensitive, and non-proprietary summation of Phase I results that is intended for public viewing)
- Monthly reports, may be in the format of a slide deck and teleconference
- Phase I Special Technical Summary (may be in the form of a slide deck, after a significant achievement, event, or meeting)
- Final Report including major accomplishments and proposed path forward
- Final SBIR Project Summary (one-page, unclassified, non-sensitive, and non-proprietary summation of Phase I results that is intended for public viewing)

PHASE II DELIVERABLES / REPORTS

Phase II proposals should anticipate the deliverable listed above with the addition of the following:

- Quarterly In-Progress reviews in the format of a slide deck and teleconference

DLA SBIR 14.2 Topic Index

DLA142-001 Advanced Battery Manufacturing Technologies

DLA SBIR 14.2 Topic Descriptions

DLA142-001 TITLE: Advanced Battery Manufacturing Technologies

TECHNOLOGY AREAS: Air Platform, Ground/Sea Vehicles, Materials / Processes, Electronics, Weapons

OBJECTIVE: DLA seeks to provide responsive, best value supplies; in a manner, that consistently meets our customer's needs. DLA continually investigates diverse technologies for manufacturing which would lead to the highest level of innovation in battery products supporting fielded weapon systems (many of which were designed in the 1960's, 1970's and 1980's) with a future impact on both commercial technology and government applications. As such, advanced technology demonstrations for affordability and advanced industrial practices to demonstrate the combination of improved battery manufacturing and operation, as well as improved business methods are of interest. Modeling and simulation are encouraged, but not required, to guide the development of improvements in battery manufacturing processes. All these areas provide potential avenues toward achieving breakthrough advances.

Proposed efforts funded under this topic must encompass specific battery manufacturing technology resulting in a unit cost reduction and improvement of battery product availability. It is preferred that technologies do not alter the form fit and function of the battery. Research and development efforts selected under this topic shall demonstrate and involve a degree of risk where the technical feasibility of the proposed work has yet to demonstrate a fully established maturity.

Further, proposed efforts must align between Technology Readiness Level (TRL) 3 and 6 to receive funding consideration. The definition of TRL 3 is -- analytical and experimental critical function and/or characteristic proof of concept, and TRL 6 is -- system/subsystem model or prototype demonstration in a relevant environment.

DESCRIPTION: DLA seeks to develop manufacturing and logistics solutions that improve the industrial capability to deliver batteries to the Warfighter in a ready to use state with better shelf life, increased safety, and lower cost and lead-time. These solutions must apply innovations to improve the manufacturing or production of batteries, reduce costs associated with the battery manufacturing process, advance standardization in the battery supply chain, or reduce the environmental impact of battery manufacturing and disposal. Technology solutions must include advancements in processes or equipment used in the production of batteries or their components, such as the anode, cathode, electrolyte, separator material, cell, and battery management system. Proposed solutions must apply to one or more of the following technical thrust areas:

- Diminishing Manufacturing Sources and Material Shortages (DMSMS)
- Reduction of Acquisition Costs
- Surge and Sustainment
- Shelf Life
- Technology Transition/Insertion
- Automation
- Lithium Battery Safety

These solutions must result in an improvement in the affordability of battery products and services to DLA and its customers, the sustainment of existing defense systems, and the potential effects on the next generation of defense systems. The proposals must include an economic analysis of the expected market impact of the technology proposed. This topic seeks a revolution in the reduction of unit cost metrics and battery product availability. Incremental advancements will receive very little consideration. DLA seeks only projects the private sector considers too risky for ordinary capital investment.

SBIR Phase Definitions:

PHASE I: Combine innovative approaches for modification and or functionalization of current and future battery manufacturing. Incorporate material within the project to evaluate concept for proof-of-principle, and demonstration of the proof of principle in a controlled laboratory environment. Demonstration will successfully detect and presumptively identify a manufacturing cost savings, a reduced lead-time, improvement in shelf and or service life

of the battery, or an increase of the items availability in the commercial or government market. Include, where appropriate, a process technology roadmap for implementing promising approaches for near term insertion in support of Department of Defense (DoD) systems, subsystems or component production.

PHASE II: Develop applicable and feasible prototype demonstrations for the approach described, and demonstrate a degree of commercial viability. Validate the feasibility of the innovative battery technologies and its manufacturing process by demonstrating implementation in the production, testing, and integration of items for DLA. Validation would include, but not be limited to, system simulations, operation in test-beds, or operation in a demonstration system. A partnership with a current or potential supplier to DLA is highly desirable. Identify any commercial benefit or application opportunities of the innovation. The development of innovative processes should proceed with the intent to readily transition to production in support of DLA and its supply chains.

PHASE III: Technology transition via successful demonstration of a new process technology. This demonstration must show near-term application to one or more Department of Defense systems, subsystems, or components. This demonstration must also verify the potential for enhancement of quality, reliability, performance and/or reduction of unit cost or total ownership cost of the proposed subject. Proposed efforts, if directly related to manufacturing process innovation, must be judged to be at a Manufacturing Readiness Level (MRL) of less than 6 -- capability to produce a prototype system or subsystem in a production relevant environment -- but greater than 2 -- manufacturing concepts identified -- to receive funding consideration.

Private Sector Commercial Potential: Battery manufacturing technologies have a direct applicability to all defense system technologies. Battery manufacturing processes and related technology and support systems have wide applicability to the defense industry including air, ground, sea, and weapons technologies. There is relevance to the private sector industries as well as civilian sector. Many of the technologies under this topic would be directly applicable to other DoD agencies, NASA, and any commercial manufacturing venue. Advanced manufacturing technologies for batteries would directly improve production in the commercial sector resulting in reduced cost and improved productivity.

REFERENCES:

1. NDIA Military Power Sources Committee Briefing, June 2013, DLA Battery R&D

2. NDIA Manufacturing Division White Paper, April 2011, The Imperative Military Need for Portable Power and the Critical Problems With Power Today

KEYWORDS: Battery manufacturing, battery, life cycle cost, Diminishing Manufacturing Sources and Material Shortages, DMSMS, surge, sustainment, shelf life, technology transition, technology insertion, automation, lithium battery safety, Li/CFx, lithium, batteries, communications, electronics, electronic materials, electrolyte, anode, cathode, separator material, battery cell, lead acid, adaptive control, agile manufacturing, computer aided design, computer aided engineering, computer aided manufacturing, computer aided process planning, computer integrated manufacturing, integrated product and process design, intelligent manufacturing, just in time, lean manufacturing, lean production, machine optimization, manufacturing capacity, manufacturing cost, manufacturing efficiency, manufacturing quality, model based manufacturing, predictive modeling, process control, process design, process diagnostics, process planning, product design, product specifications, production control, quality assurance, real time inspection, sustainable manufacturing